

A NEW GENERIC CONCEPT IN THE EUPHORBIACEAE

BY
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AN intensive investigation of *Hevea* (the genus of the commercial rubber tree) and its nearest relatives, which has been in progress in the Amazon forests during the past ten or twelve years, has added immeasurably to our understanding of the composition, distribution and possible evolutionary history of these groups. Results of this work have been appearing sporadically and have strengthened our belief that *Hevea* and *Micrandra* are close allies,¹ and may have had a more or less parallel evolution²; that both are related to the rather anomalous *Joannesia*²; and that the generic concept which had hitherto been known as *Cunuria* cannot be maintained as separate from *Micrandra*.³ It is, therefore, of considerable interest that a new genus of the *Hevea-Micrandra-Joannesia* complex has now come to light.

Vaupesia R. E. Schultes gen. nov. Euphorbiacearum.
Arbores magnae, elatae, parco cum succo lacteo (vel

¹ This relationship was, apparently, first expressed by Bentham in 1880 (in Journ. Linn. Soc. Bot. 17 (1880) 262): “*Cunuria, Micrandra, Hevea* and *Joannesia* may be to a certain degree related to each other.”

² Baldwin: in Journ. Hered. 38 (1947) 54–64; Baldwin: in Am. Journ. Bot. 34 (1947) 265; Baldwin and Schultes: in Bot. Mus. Leafl. Harvard Univ. 12 (1947) 325–326.

³ Schultes: in Bot. Mus. Leafl. Harvard Univ. 15 (1952) 201–222.

saepissime apparenter absenti), foliis alternis, petiolatis, stipulis infraaxillaribus folia juniora involventibus caducis. Folia integra, penninervia, coriacea, pagina supra basim biglandulosa, costis secundariis angulo ampio decurrentibus, arcuatis, tertiiis subparallelis. Inflorescentiae bisexuales, paniculiformes, valde floribundae. Pedunculi axillares et terminales, foliis subaequales vel breviores, rigidi. Flores monoeci, petaliferi. Flores staminati; sepala quinque, valde imbricata, quincuncialia; petala calycis lobis alternantia; disci glandulae quinque, vulgo liberae, petalis alternantes. Antherae in columna centrali verticillatim insertae, inferiores disci lobis alternantes, birimosae. Flores pistillati: sepala quinque, eis maris similia; discus hypogynus annularis vel subannularis, glanduloso-lobatus; ovarium liberum, triloculare, loculis uniovulatis; stylus sessilis, tripartitus divisionibus bifidis, erectis vel leviter patentibus. Fructus capsularis; capsula magna, subglobosa, in coccus bivalves partiens, epicarpio carnoso et endocarpio crasso lignoso. Semina magna, ovoidea, testa crustacea, immaculata, ecarunculata; albumen carnosum; cotyledones planae, latae.

Generis species typica: *Vaupesia cataractarum*.

Generis nomen regionem in qua haec arbor reperta est perstringit.

Vaupesia cataractarum R. E. Schultes sp. nov.

Arbor usque ad sexaginta ad octoginta pedes alta (saepe minor) et usque ad decem pollices in diametro. Truncus erectus, columnaris, sine radicibus tabularibus, tenui cum cortice flavo-cinereo vel albido-cinereo, exfoliato; succo aquoso valde sparsissime lacteo-albo vel frequenter sanguineo, siccitate aliquid cretaceo (vel saepe apparenter absenti). Rami saepe succo ampio aquoso sanguineo instructi, teretes, tenui cum cortice albido-luteo obtecti. Folia valde crasso-coriacea, supra atrovi-

ridia laetaque, infra pallidiora hebetiaque, perfecte nervum centralem versus angulo 90° plicata, ovata vel rarer elliptico-ovata, omnino glaberrima, in specimine typico 16–19 cm. longa, plusminusve 10 cm. lata, apice breviter acuminata vel saepe obscurissime subacuta, basi vulgo perfecte rotundata, valde et conspicue marginata, venis supra non conspicuis sed infra elevatis, secundariis decem ad duodecim leviter arcuato-adscendentibus, tertiiis reticulatis subparallelis, glandulis magnis, oblongis, usque ad 4 mm. longis; foliis juvenilibus papyraceis, linear-lanceolatis, apice acuminatis, basi cuneatis, marginatis, 20–27 cm. longis, 5.5–8 cm. latis. Petiolus tenuis, siccitate striato-fibrosus, 6–9 cm. longus (saepe longior), usque ad 3 mm. in diametro. Inflorescentiae rigidae, plerumque 9–13 cm. longae, rhachide glabra, cortice rufo-purpureo. Bracteae flores subtendentes stramineae, acuto-subulatae vel late triangulares, plerumque 4–5.5 mm. longae, basi 2.5–3.5 mm. latae, glabrae sed apicem versus saepe minute rufo-barbellatae. Flores lutei, in sole valde aromatico-pungentes, terminales mayores saepissime pistillati sed saepe staminati. Flores pistillati: apice usque ad 5–6 mm. in diametro, calyces 10 mm. longi, extus minutissime scobiculato-pulverulentii, intus glaberrimi, $\frac{1}{3}$ partis divisi, laciniis margine conspicue ciliato-fimbriatis, tres exteriores mayores, rhombico-spathulati cum apicibus lateraliter contiguis, subcucullati, apice rotundati sed in anthesi nunc vi fissi, 4 mm. longi, 3.5 mm. lati, duo interiores ovati, 3 mm. longi, 2–2.5 mm. lati; petala membranacea, obovata, 9 mm. longa, 4.5 mm. lata, apice leviter subcucullata, margine integra; discus hypogynus ovario adnatus, quinquelobatus, lobis variabilibus sed saepissime late rotundatis vel triangulari-subulatis, 1 mm. longis, 0.5–1 mm. latis, basi in vivo apparenter sanguineus; ovarium longe pyramidaliconicum, subtrigonum, glabrum, 4.5 cm. longum, plus-

EXPLANATION OF THE ILLUSTRATION

PLATE XII. *VAUPESIA CATARACTARUM* *R.E.Schultes.*
1, flowering branch, about one half natural size.
2, fruiting branchlet, with capsule ready for de-
hiscence, about one half natural size. 3, capsule
before the drying out of the epicarp, about one half
natural size. 4, pistillate flower with part of calyx
and two petals removed, about two and one half
times natural size. 5, staminate flower with part
of the calyx and two petals removed, about two and
one half times natural size. 6, staminal column
with anthers, about four times natural size. 7, one
valve of the capsule with epicarp adhering, about
natural size. 8, seeds, with one germinating, about
natural size.

Drawn by ELMER W. SMITH

PLATE XII

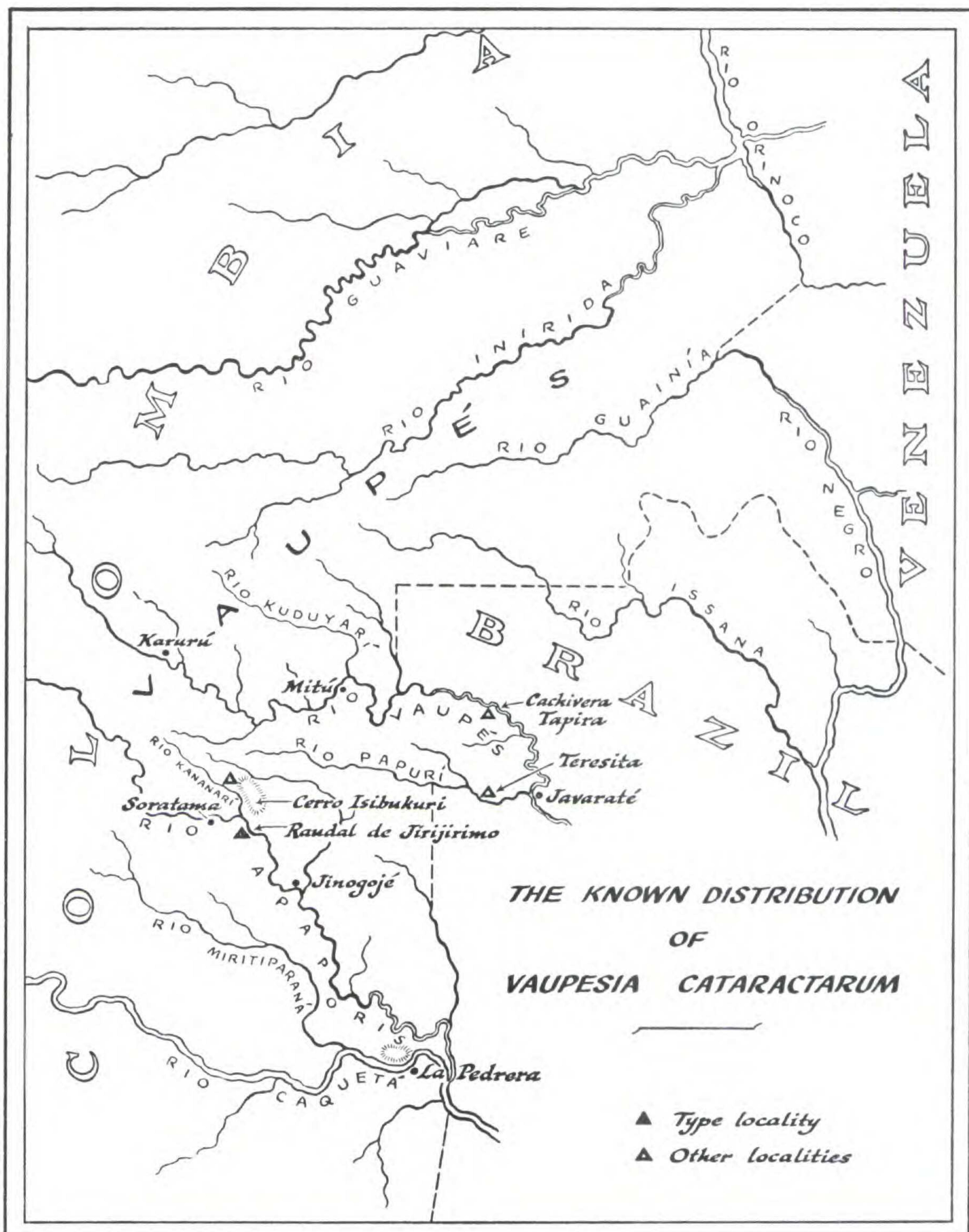


EXPLANATION OF THE ILLUSTRATION

PLATE XIII. Map showing the known distribution
of *Vaupesia cataractarum*.

Drawn by ELMER W. SMITH

PLATE XIII



minusve 2 mm. in diametro; stylus tripartitus cum divisionibus bifidis, erectis, 1.5 mm. longis. Flores staminati: terminales pistillatis similes, laterales structura aequales sed partibus omnibus minores; florum staminatorum terminalium disci glandulae ad columnae staminalis basim insertae, parvae, erectae, oviformi-ellipsoideae, 0.5 mm. longae vel breviores; columna crassissima, usque ad 10 mm. longa, basi plusminusve 1.5 mm. in diametro, supra verticillum inferiorem 1 mm. in diametro sed omnino cylindrica, non attenuata; antherae octo, quinque in verticillo inferiore, ad columnae basim 3–3.5 mm., et tres in verticillo ad columnae apicem, aequales, 0.8–1 mm. longae. Fructus globosus vel subglobosus, vivo plusminusve 5 cm. longus, 4.8–5 cm. in diametro, siccitate vix minor, apice rotundato-obtusus, basi aliquid depresso, epicarpio nitido, atroviridi, saepe maturitate paulo purpurascenti, magnopere crassissimo (vivo saepe 6 mm. crasso), endocarpio lignoso, comparate tenui (usque ad 2.5–3 mm. crasso), valvis regularibus, plerumque 4.5 cm. longis, 2 cm. latis; pedunculo vulgo longissimo, robusto, usque ad 8–12 cm. longo, 4 mm. in diametro. Semina cum testa rufo-brunnea et conspicue hebeti, in circuitu longitudinali rotundato-ovalia, plusminusve 30 mm. longa, 26 mm. lata, compressa, 18 mm. crassa, in circuitu transversali inaequaliter rhomboidea, superficiebus duabus ventralibus conspicuis, carina dorsali prominenti, hyli cicatrice conspicua, subrotundata vel subtriangulari, 6–7 mm. longa lataque, prope apicem cicatricum versus rostello instructa.

COLOMBIA: Comisarías del Amazonas and Vaupés, Río Apaporis, Cachivera de Jirijirimo and vicinity. Altitude about 800 feet. "Tree 50–55 feet tall. Diameter 8–10 inches. Flowers yellowish. Latex chalky white. Bark flaky, grey-white. Leaf like *Cunuria Spruceana* with which it grows. Common." September 16, 1951, Richard Evans Schultes & Isidoro Cabrera 14006 (TYPE in Herb. Gray).—Same locality. "Tree 60 feet tall. Diameter 1 foot. Bark greenish grey. No

latex." June 12, 1951, *Schultes & Cabrera* 12431.—Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri, at base of mountain. Quartzite. Altitude about 800 feet. "Large tree. Bark whitish grey, rough. Latex very watery, reddish." August 4, 1951, *Schultes & Cabrera* 13339.—Same locality. "Tree 100 feet tall. Latex red only in the branches." January 23-25, 1952, *Schultes & Cabrera* 15059.—Comisaría del Vaupés, Río Vaupés, between Mitú and Javareté, Raudal de Tapira. In rocky high land covered with humus along rapids. "Fluted tree. Diameter 26 inches. Bark yellowish, tawny, papery, peeling easily. Inner bark reddish. No latex. Wood hard, centre reddish brown. Height 80 feet. Crown large. Leaves folded at right angles along midrib, slightly paler beneath, somewhat crassulent or fleshy. Bark on extreme branches whitish yellow. Seeds brown, dull. Capsules with thin woody wall, thick epiderm green but reddening before breaking. Desano=ma-há-wa-soo. Together with *Micrandra Spruceana* and *Hevea pauciflora* var. *coriacea*." May 14-24, 1953, *Schultes & Cabrera* 19344.—Same locality and date. *Schultes & Cabrera* 19345, 19346, 19347, 19353.—Comisaría del Vaupés, Río Papuri, Teresita. Caatinga forest. "Large columnar tree; diameter 18 inches; height 60 feet. Crown large. No latex. Bark papery, yellowish grey." May 27, 1953, *Schultes & Cabrera* 19440.—Same locality and date. "Large columnar tree, 60-70 feet tall. Crown large. No latex. Seeds eaten after boiling." *Schultes & Cabrera* 19444.—Same locality and date. *Schultes & Cabrera* 19451.

All of the collections cited above are from Colombian territory, but, in several cases, they were made along rivers (the Vaupés and the Papuri) forming part of the boundary between Colombia and Brazil. I have seen hundreds of trees of *Vaupesia cataractarum* on the Brazilian bank, so we must report this species as occurring in both countries. It might, also, later be found in that part of Venezuela adjoining the Río Negro and the Río Guainía, even though relatively intensive studies of *Hevea* and *Micrandra* in that area have not, as yet, disclosed its presence there.

When I first met with *Vaupesia* in the field, I thought that I had found a new species of *Micrandra* (including *Cunuria*), notwithstanding the presence of petals. The general habit and appearance of the tree is, indeed, so

EXPLANATION OF THE ILLUSTRATION

PLATE XIV. Trunk of the tree from which the type
of *Vaupesia cataractarum* was taken.

Photograph by RICHARD EVANS SCHULTES